

Math Academy 2011

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Shift 2 & 10

Jane went to the store.

- Can you read the sentence aloud?
- Can you tell me where Jane went?
- Can you tell me who went to the store?
- Can you tell me why Jane went to the store?
- Do you think it made sense for Jane to go to the store?

Discussion

- These questions progress from literal to the inferential to the evaluative.
- Asked higher-order questions.

Math Class Example: Solve

$$17 \times 4 =$$

Answer in your journal

Math Example/Journal

- What was the answer?
- Tell me how you got the answer.
- Show me how you go the answer.
- Is that reasonable?
- Who has a different way?

Shift #2

- Adapt what we know works in our reading programs and apply it to mathematics instruction.

Rationale

- Brain research shows that asking higher-order questions strengthen neural connections – in other words it makes students smarter.
- In math instruction we tend to be narrower in our teaching – We tend to focus just on the answer not on the deeper thinking.
- Homework assignments with too many questions that cannot possibly be reviewed the next day, is counter productive.

Power statements

- Why?
- How did you get that?
- Is that reasonable?
- Who has a different way?

How do we do this?

- Ask higher-thinking questions frequently.
- Focus on the “why”
- Don’t think you have enough time?
Remember – LESS IS MORE!!!

What should be in an effective mathematics classroom?

- Lots of higher-thinking questions.
- All numerical and one-word answers are consistently greeted with a request for justification.
- Only reasonable homework assignments are given and when reviewed, the focus is on the explanation and understanding, not checking for the right answers.

Journal

- How will your teaching change because of the use of Shift #2?
- How would you correct homework knowing that good teachers should focus not just on the correct answer?

Shift #10

What kind of a triangle is this?



Discussion

- Why?
- Anyone else?

Shift #10

- Make “Why?” “How do you know?” and “Can you explain?” classroom mantras.

Rationale

- Creating an environment where ALL students in the class get to hear explanations or justifications and where multiple explanations are valued makes it far safer for students to take risks.
- Provides a language-rich classroom.
- Students learn from each other as well as the teachers which builds an effective classroom community of learners.
- Students learn that there are multiple ways to come to the correct answer to a problem.

Power Statements

- Why?
- How do you know?
- Can you explain your thinking?
- How did you get that answer?

How do we do this?

- Ask the questions!
- Be prepared for the, “What did I do wrong?” comment when you ask the questions.
- Focus on the how- not the answer alone.
- When an incorrect response is given always ask “Why?” not “No.” “Wrong,” “Not quite”.

What should be in an effective mathematics classroom?

- Every student answer is responded to with a request for justification.
- Students and teachers both consistently and frequently use “Why?” “How do you know?” and “Can you explain?” etc.
- Dismissive responses such as “No.” “Wrong,” “Not quite,” are absent.

Task/Plan

- Journal- How will your teaching change because of the use of Shift 10?
- Work with partner to continue working on your lesson plan in the Concrete and Representational stages and embed questions based on shifts 2 and 10. Finish all but anticipatory set of the lesson.